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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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April 22, 1999

Mark W. Scanlon, Sr. Geologist
Ark Land Company
P. O. Box 1029
Wellington, Utah 84542

Re: Deficiencies in Exploration Application, Canyon Fuel Company, LLC., Dugout Canyon Mine, ACT/007/039-EXP99B, Folder #3, Carbon County, Utah

Dear Mr. Scanlon:

The Division has completed a review of your Notice of Intent to Conduct Minor Coal Exploration at the Dugout Canyon Mine. We have identified some deficiencies in the application that prevent us from approving it at this time. We have enclosed a copy of our technical analysis which describes the deficiencies. Please review it carefully. You will need to address the deficiencies before we can issue a permit. In order for us to maintain this in our review process we will need to receive a response by no later than May 21, 1999.

Please call if you have any questions.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

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Enclosure
cc: Richard Pick, Canyon Fuel
Chris Hansen, Canyon Fuel, Scofield
Price Field Office
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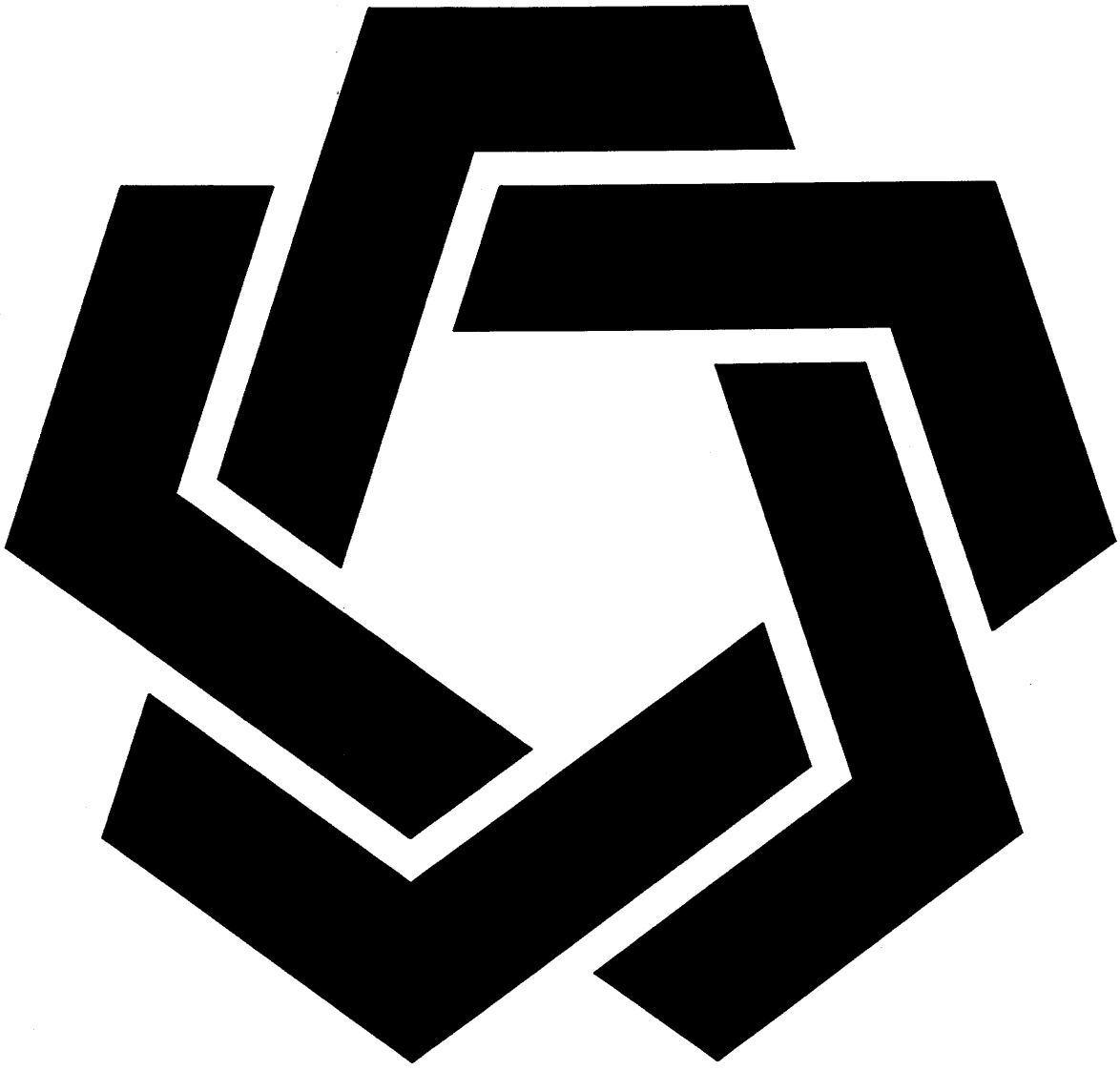
State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Technical Analysis and Findings For Coal Exploration
Dugout Canyon Mine
ACT/007/039
Exploration 99B
April 21, 1999

INTRODUCTION

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

SUMMARY OF OUTSTANDING DEFICIENCIES

The Technical Analysis regarding the proposed permit changes is not complete at this time, pending submittal of additional information by the applicant and further review by the Division, to address outstanding deficiencies in the proposal. A summary of those outstanding deficiencies is provided below. Additional comments, concerns and deficiencies may also be found within the analysis and findings made in this Draft Technical Analysis which have not been presented in this summary. Upon finalization of this review, any outstanding deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the Division, result in denial of the proposed permit changes, or may result in other executive or enforcement action as deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.

Accordingly, the applicant must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

R645-201-326, The permittee has not received, at this time, permission from the land owner for the use of roads.

R645-202-231, The entire exploration area is in critical deer summer range. It appears a portion of the seismic line and all of the drill sites except G and J are near potential deer fawning areas although site L is adjacent to the Dugout Canyon road. None of the sites other than G, J, and L should be disturbed between May 1 and July 15. The applicant needs to commit to not disturb these areas within this period.

R645-202-235, use of the Best Technology Currently Available with regard to the installation of straw bales.

R645-202-235, CFC or Ark Land Company will have an authorized representative present during drilling operations. The applicant should assure that someone, either these representatives or other personnel, who is qualified to identify and record zones of lost circulation or drilling fluid loss, ground-water inflow, and elevations of water in the bore hole is on-site at all times during drilling.

R645-202-235, -244.100 - The applicant should be prepared to complete up to three of the borings as piezometers, spaced approximately one per square- mile, if ground water is encountered in the Blackhawk Formation and adjacent strata. The applicant should also be prepared to complete at least one boring as a piezometer in the Castlegate Sandstone.

R645-202-240, During reclamation, if reclamation methods are changed as described in the

proposed exploration plan so as to meet the needs of the surface owner, which is, Canyon Fuel Company, LLC, then an amendment must be filed and approval granted by the Division before such changes can be enacted.

R645-202-242, The applicant needs to clarify and modify the surface preparation techniques. The NOI indicates seed could be crimped or worked into the soil by roughening it with a backhoe or dozer, and this could bury the seed too deeply. The surface should be roughened first with seeding following shortly after.

R645-202-242, The NOI says straw or hay mulch may be used, but the applicant needs to give a definitive commitment. Seed needs to be protected either be raking the surface after seeding or by applying mulch.

TECHNICAL ANALYSIS FOR COAL EXPLORATION:

ADMINISTRATIVE INFORMATION

Regulatory Reference: R645-200

Analysis:

Canyon Fuel Company is proposing to drill up to six exploratory holes and to conduct one seismic line survey within and to the west of Dugout Canyon. The Notice of Intention (NOI) includes the applicant's name, address, telephone number and representatives who will be present during drilling operations. Map 1 shows the locations of the proposed exploration activities, and Table 1 shows legal descriptions to the nearest quarter quarter section, collar elevations, and estimated coal and total depths.

The applicant desires to begin non-disturbing activities, such as flagging, as soon as road conditions allow. Ground-disturbing activities must begin by mid-July to avoid late season used conflicts, but the applicant would like to begin in the middle of June. It is hoped that the exploration work can be completed by the end of August, but if exploration begins July 15 and lasts nine weeks, it would not be done until September 16.

Specific exploration and reclamation methods are described in each section of the NOI. The applicant intends to remove less than 250 tons of coal through exploratory drilling.

The coal exploration regulations do not require information about cultural resources, but other laws do. Drill sites "I," "J," and "L" were surveyed in 1998, and no cultural resources were identified. The seismic study is to be conducted along an existing road, so it is unlikely this area would contain cultural resources. A survey will be conducted at sites "G," "H," and "N" and their access routes prior to ground-disturbing activity.

Findings:

Information provided in the NOI is considered adequate to meet the requirements of this section of the regulations.

OPERATIONAL STANDARDS

CERTIFICATIONS

Regulatory Reference: R645-301-512

Analysis:

The permittee has certified the designs and met the requirements of R645-301-512 in Hydrology and Engineering Section.

Finding:

The requirements of this section of the regulations are considered adequate in regard to the proposed exploration letter of intent.

ROADS

Regulatory Reference R645-202-232, R645-301-527.230

Analysis:

The road extension to the drill site will be short lived and be used to gain excess to the drill pads. The permittee has submitted the necessary information to meet the requirements for ancillary roads.

Findings:

The permittee has met the necessary requirement of this section of the regulations. Therefore, it is considered adequate in regard to the proposed exploration's letter of intent.

RIGHT OF ENTRY

Regulatory Reference: R645-201-326

Analysis:

There are two landowners (Canyon Fuel and State Lands) of the roads being used to gain excess to the six drill sites. The permittee will need to receive approval to use the roads and the

lands that are not owned by Canyon Fuel. These roads are for limited time use, and therefore, are ancillary roads to the site. The permittee has not received, but is in the process of receiving a letter of permission.

Findings:

R645-201-326; The permittee has not received, at this time, permission from the land owner for the use of roads.

TOPSOIL

Regulatory Reference: R645-202-230.

Analysis:

The proposed coal exploration submittal adequately describes the soil resources and soil salvage operations. The following analysis is made:

- Exploration Drilling and Seismic Survey
- Soil Resources
- Soil Resource Protection
- Acid/Toxic Forming Materials

Exploration Drilling and Seismic Survey

Six coal-exploration drill sites and one seismic survey line are proposed. The proposed exploration area is located in T.13 S., R.12 E. and occurs within the book Cliffs coal field of Carbon County, Utah. All access routes, roads and pad sites are shown on Map 1 in Appendix A. Areas of disturbance associated with access road and exploration drill site construction is shown in the following table:

Proposed Drill Site	Road Upgrade Length (feet)	New Road Construction (feet)	New Road Construction (acres)*	Drill Pad Area (acres)	Total New Disturbance (acres)
G	0	900	0.21	0.23	0.44
H	3000	1000	0.23	0.16	0.39
I	450	0	0.00	0.23	0.23
J	0	0	0.00	0.23	0.23

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L	0	0	0.00	0.16	0.16
N	3300	2500	0.57	0.16	0.73
Seismic A-A'	0	0	0.00	0.00	0.00
Total	6750	4400	1.01	1.17	2.18

* Assumes 10 feet average road width.

The proposed exploration sites are accessed from Nine Mile Canyon Road, Route 53, then along the Dugout Canyon and Pine Canyon roads to various unimproved public and private dirt roads. The existing Pine Canyon dirt road will be utilized to access drill sties G, H, I, J, N and the seismic survey area. The new Dugout Canyon Mine road will be used to access site L. Existing roads have been used wherever possible, but some upgrades and new road construction will be required in for certain areas (see above table and Map 1).

Soil Resources

Soil resource information is adequately described. Soil resource information is extracted from the Carbon-Emery County Soil Survey published by the Natural Resource Conservation Service, formerly the Soil Conservation Service. Soils are mainly derived from the North Horn, Price River and Blackhawk Formations and often have a high clay content. Soil cover varies by location and slope. Surface horizons range from shallow to deep while subsoils typically contain high rock content. The infiltration rate is moderately high for all soils.

The following table summarizes the soils information as presented for each drill site:

TECHNICAL ANALYSIS

Drill Site	Soil Name	Texture	Characteristic	Terrain	Vegetation
G	Podo-Rock outcrop complex Beje-Trag complex	sandy loam	shallow, well drained	access has steep side slopes, pad area is flat lying	grasses sage brush, sparse juniper
H	Guben-Rock outcrop complex	bouldery fine sandy loam	7" fine brown sandy loam topsoil, 17" stoney loam subsoil	previously disturbed logging areas	sparse woods
I	Senchert loam	very dark gray-brown loam topsoil	4" topsoil is moderately deep and well drained, 3 ft deep loamy subsoil		grasses and aspen
J	Beje-Trag complex	brown loam topsoil with brown clay loam subsoil	6" topsoil overlays thicker subsoil		Grasses and sage brush
L	Midfork family Comodore complex	stoney loam subsoil	less than 6" topsoil with 19" subsoil	adjacent to unimproved Dugout Canyon road located above the mine	
N	Rottulee family Trag complex	brown stoney loam topsoil, clay loam subsoil	10" topsoil with forest debris and high organic matter, 26" underlying subsoil	logging trails have been cut through the area	wooded
seismic	Beje-Trag, Rottulee-Trag, Rabbitex-Datino Variant, and Perma soils				

Soil Resource Protection

General. Topsoil will be separately removed, stored , and redistributed on areas disturbed by the coal exploration activities as necessary to assure successful revegetation. Drill sites H an N and their proposed access routes occur in areas where the original surface topsoil layer has been previously disturbed from logging activities and as a result, sparsely or non-vegetated subsoil occur locally at the present time.

Where topsoil has been previously removed during logging road construction, the disturbed topsoil material, if present, will be handled as topsoil and separately removed, stored, and re-distributed as if it were native topsoil. Where practical, the original topsoil material will be recovered and redistributed to promote future revegetation and further rehabilitate the logging roads.

Topsoil stockpiles will not be seeded due to the short duration of storage.

Road Construction. In areas of new road construction, a geologist or soil scientist will direct the topsoil stripping and salvage operations. Removed topsoil will be stockpiled or windrowed adjacent to the road. Where topsoil is stockpiled, a shallow trench will be dug on the downhill side of the stockpile to prevent loss of soil resource. Erosion control structures, such as water bars, berms, straw bales, etc, may also be installed to prevent runoff.

Drill Site Construction. Larger drill pads (100' x 100') will be constructed for deeper drill holes I and J, and possibly G. Smaller drill sites will accommodate the shallower holes H, N, and L. After grubbing, the topsoil present will be stripped from the drill sites and stockpiled on the uphill side of the drill pad using a D-6 bulldozer or equivalent and a backhoe. A shallow trench/berm will be constructed on the downhill side of the pile to help prevent soil loss from erosion. Topsoil stockpiles may be further protected with straw bales and/or silt fences. If additional leveling of the drill pad is needed, subsoil horizons will be stripped and stored separately.

Acid/Toxic Forming Materials

Mud pits will be dug at each site to contain drill cuttings and fluids. Pits will be sized approximately 10' x 20' x 6' deep each, but dug greater than four feet in depth and sufficiently deep to allow for the burial of potentially acid/toxic materials below a minimum of four feet of cover.

Findings:

The requirements of this section of the regulations are considered adequate.

WILDLIFE

Regulatory Reference: R645-202-231, R645-202-232

Analysis:

There are eight listed or candidate threatened or endangered species that do or may occur in Carbon County. The exploration areas do not contain habitat for any of these except the bald eagle and peregrine falcon.

Bald eagles are not known to nest in the area but could potentially be there in the winter. Because of the timing of the proposed operations, it is unlikely there would be any effect on bald eagles.

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Peregrine falcons are believed to nest in the Book Cliffs several miles from the proposed exploration area, but they have not been found in the immediate area.

According to information in the mining and reclamation plan, there are golden eagle and buteo nests within one-half mile of proposed drill site "G" and seismic line "A." In addition, it appears the exploration areas contain habitat suitable for tree-nesting raptors, especially red-tail hawks but possibly including accipiters, such as goshawks.

In the wildlife section, the NOI says it is likely exploration activities will commence after July 15, 1999, but other sections of the NOI indicate it could begin earlier. The wildlife section says that if exploration is to begin before July 15, the applicant will conduct a raptor survey within a one-half mile radius of affected drill pads and the seismic survey line and forward the results to the Division.

The commitments in the NOI with regard to raptors are acceptable. If exploration activities begin after July 15, there would be no concern about raptors. **If disturbance is to occur before July 15 and if nesting raptors are within the one-half mile buffer zone, the Division will require as a performance standard there be no disturbance until after July 15.**

According to information in the current mining and reclamation plan, the entire area contains critical deer summer range. Although the area is used throughout the summer, the most important time is during fawning which takes place primarily from May 1 through July 15. The most important areas for fawning are those that provide good cover, such as aspen, conifer, and pinyon/juniper areas.

Comparing Map 1 in the exploration NOI and Plate 3-1 in the mining and reclamation plan, it appears drill holes G, I, J, and N are in sage/grass vegetation communities, L is in a Douglas fir community, and H is in a Ponderosa pine community. The seismic line is mostly in sage/grass, but the southern end is in Ponderosa pine and sage/grass/juniper.

Neither a Division nor a Wildlife Resources biologist has visited the sites, but, based on available information, the sites most likely to contain nearby fawning areas are drill sites H, I, L, and N and a portion of the seismic line. This leaves sites G and J as being least likely to be near deer fawning areas. Although L is in a Douglas fir community, it is right next to the Dugout Canyon road, so exploration in this area should not be a concern.

Any of the sites could be disturbed after July 15, but only sites G, J, and L should be disturbed before July 15. The applicant needs to make this commitment or this should be included as a stipulation to approval of the NOI..

The applicant commits to conduct an on-site inspection with regulatory agencies of

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proposed drill sites and access routes prior to any construction or drilling to discuss site-specific concerns if requested. This on-site inspection is needed to determine whether there are any concerns not addressed in the NOI. For example, the NOI mentions a small intermittent stream and says it could be culverted or a rock bridge built if necessary. It would be best to see and discuss features like this. It would also be possible to look at the sites to determine whether they are near fawning areas.

TECHNICAL ANALYSIS

Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following in accordance with:

R645-202-231, The entire exploration area is in critical deer summer range. It appears a portion of the seismic line and all of the drill sites except G and J are near potential deer fawning areas although site L is adjacent to the Dugout Canyon road. None of the sites other than G, J, and L should be disturbed between May 1 and July 15. The applicant needs to commit to not disturb these areas within this period.

Alternatively, the Division could stipulate that the sites other than G, J, and L not be disturbed until after July 15.

If exploration activities begin before July 15, the applicant commits to perform a raptor survey within one-half mile of these sites. If any active nests are found within these buffer zones, the applicant must delay drilling in the areas near the nests until after July 15. The Division will enforce this as a performance standard.

HYDROLOGIC BALANCE

Regulatory Reference R645-202-235

Analysis:

The study area is located in the higher elevations at about 8,000 feet. The majority of the access is on existing roads which were established when the area was logged for timber harvesting. There are two exceptions, namely drill hole H requires about 3,000 feet of added road and drill hole N requires about 2,500 feet of added road. Even these will use existing logging roads as much as possible. Typically the roads will need to be upgraded and widened since it's been some time since they were last used. Tree clearing is not anticipated. Topsoil encountered during road construction will be stockpiled for later reclamation. Topsoil piles will have trenches on the downhill side to prevent loss of soil resource. The roads will have water bars, berms, and straw bales installed to prevent erosion. Detailed descriptions for each road segment and drill pad location are provided, however, they all generally follow the above description.

The drill sites are shown in Figure 4, Typical Drill Pad Construction & Layout. The down slope sides of the pad will have silt fence or straw bales and the topsoil storage pile will have a berm and silt fences or straw bales on the down slope sides. Figure 2 shows typical silt fence

installation and appears to be adequate. The straw bale installation is shown in Figure 1 and is NOT of the Best Technology Currently Available. Specifically, in Figure 2 (on Figure 1 Typical Straw Bale Installation) the stakes are regarded as optional and to be used "when needed". Stakes need to be used in ALL cases. Similarly, Figure 3 (on Figure 1 Typical Straw Bale Installation) the trenching prior to straw bale installation is regarded as optional. Trenches need to be used in ALL cases and Figure 3 should be eliminated.

The anticipated time frame for the project is from early June to late August which should contribute to successful reclamation and not interfere with the fall hunting season. There are no stream crossings on this project so surface water resources are not affected. Water for the drilling operations will be derived from Pine Creek and Dugout Creek and the Applicant owns water rights on both of these to use the water.

The Applicant has committed to record groundwater levels encountered along with other exploration data. This is desirable to additionally characterize the groundwater in the permit area. It is not expected that any exploration holes will be developed as monitoring wells.

Findings:

In its present form the submittal does not conform to regulations. Prior to approval the Applicant must provide the following in accordance with:

R645-202-235, use of the Best Technology Currently Available with regard to the installation of straw bales as described above.

DRILLING PERFORMANCE STANDARDS

Regulatory Reference R645-202-200, -202-235, -244

Analysis:

As the borings are advanced, the occurrence of ground water will be recorded and documented with other exploration data. Air and foam are to be the initial drilling fluids, but drilling mud and lost circulation materials will be used if needed. Ground-water resources can be difficult to identify during drilling, especially if drilling mud is used. CFC or Ark Land Company will have an authorized representative present during drilling operations. The applicant should assure that someone, either these representatives or other personnel, who is qualified to identify and record zones of lost circulation or drilling fluid loss, ground-water inflow, and elevations of water in the bore hole is on-site at all times during drilling.

Based on previous experience in this area, the applicant is not expecting to encounter any

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significant inflows of ground water, and is not anticipating that any of the exploration bore holes will be developed and maintained as water monitoring wells or piezometers. Because of the random and discontinuous nature of perched aquifers in the upper Blackhawk and overlying formations, wells completed to measure water levels in this zone would be of little value or interest, except perhaps to land owners and holders of water rights. However, experience in the Book Cliffs indicates that the lower Blackhawk Formation and the strata immediately beneath are often saturated and may be in hydrologic connection. If water is present in these lower strata, some of the borings should be developed as piezometers to determine the pre-mining potentiometric surface and to monitor for changes as mining progresses through the area. Preparation and consideration should be made in advance for completing up to three of the borings as piezometers, spaced approximately one per square- mile, if ground water is encountered in these lower strata.

Three nearby piezometers measure water levels in the Castlegate Sandstone, and at least one of the exploratory borings also should be completed as a piezometer in the Castlegate Sandstone. This could be either as a fourth dedicated piezometer or as a duel completion in the same bore hole as one of the three Blackhawk piezometers, the decision probably best being made on-site as zones of lost circulation or drilling fluid loss, ground-water inflow, and elevations of water in the bore hole are identified.

Findings:

Information provided in the Application is not considered adequate to meet the requirements of this section. Prior to approval the applicant must modify the exploration plan to include the following:

R645-202-235 - CFC or Ark Land Company will have an authorized representative present during drilling operations. The applicant should assure that someone, either these representatives or other personnel, who is qualified to identify and record zones of lost circulation or drilling fluid loss, ground-water inflow, and elevations of water in the bore hole is on-site at all times during drilling.

R645-202-235, -244.100 - The applicant should be prepared to complete up to three of the borings as piezometers, spaced approximately one per square- mile, if ground water is encountered in the Blackhawk Formation and adjacent strata. The applicant should also be prepared to complete at least one boring as a piezometer in the Castlegate Sandstone.

RECLAMATION STANDARDS

TOPSOIL

Regulatory Reference: R645-202-241 and R645-202-242.100.

Analysis:

Soil reclamation activities will closely follow the completion of each hole as follows:

- When the mud pit is sufficiently dry, it will be filled with stored subsoil and compacted to minimize settling.
- A backhoe and a bulldozer will redistribute the stockpiled subsoil on and around the drill pad to achieve as closely as practicable the original contour of the site.
- Stored topsoil will be evenly distributed over the disturbed pad area and the site will be graded back to its approximate original contour.
- The entire drill pad area will be roughened and re-seeded. Seed will be crimped or worked into the soil by roughening the surface with a dozer or backhoe or by dragging the area. Straw or hay mulch may also be used at the rate of 2000 lbs/acre and will be certified as free of noxious weeds.
- Where access roads are newly created or logging trails are reconstructed, they will be reclaimed and re-seeded as explained above. Any other areas of surface disturbance where the pre-existing vegetation was bladed, will be ripped and seeded.
- Pre-existing roads will be left in a condition equal to or better than that observed on Canyon Fuel Company's entry into the area. The reclamation methods described above may be modified to address considerations of the land surface owner, which is, Canyon Fuel Company, LLC. *During reclamation, if reclamation methods are changed as described in the proposed exploration plan so as to meet the needs of the surface owner, which is, Canyon Fuel Company, LLC, then an amendment needs to filed and approval granted by the Division before such changes can be enacted.*

Findings:

The permittee must provide the following, prior to approval, in accordance with

the requirements of:

R645-202-240, During reclamation, if reclamation methods are changed as described in the proposed exploration plan so as to meet the needs of the surface owner, which is, Canyon Fuel Company, LLC, then an amendment must be filed and approval granted by the Division before such changes can be enacted.

REVEGETATION

Regulatory Reference: R645-202-242

Analysis:

After exploration is complete, debris and equipment will be removed. When the mud pit is dry enough, it will be filled with subsoil and the site regraded. After this, straw bales or silt fence will be removed, topsoil will be spread, and the area will be seeded.

According to the NOI, seed will be crimped or worked into the soil by roughening the surface with a dozer or backhoe or by dragging the area. The applicant needs to modify this plan. It would be best to roughen the surface then seed soon after. The wording in the NOI makes it appear the seed could be buried much too deeply by the dozer or backhoe during the roughening process.

The NOI shows a seed mix consisting of five grasses, three non-grass forbs, and one shrub. It contains three introduced species that are probably not essential for revegetation success, but since they are not overly aggressive species, the seed mix is acceptable. The species used should be capable of stabilizing the soil surface from erosion, and they are compatible with vegetation of the area.

The NOI says the seed mixture will be 95% pure live seed. While this is attainable, it is not a realistic or necessary commitment. The seed just needs to meet the requirements of the Utah Seed Act and be applied in the amounts specified in the NOI.

Straw or hay mulch may be used at the rate of 2000 pounds per acre and will be certified as free of noxious weeds. The applicant needs to give a definitive commitment whether mulch will be used. The areas need to either be raked to cover most of the seed, or the areas should be mulched. It is preferred the areas be mulched to protect the seed and to provide better erosion protection.

TECHNICAL ANALYSIS

Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following in accordance with:

R645-202-242, The applicant needs to clarify and modify the surface preparation techniques. The NOI indicates seed could be crimped or worked into the soil by roughening it with a backhoe or dozer, and this could bury the seed too deeply. The surface should be roughened first with seeding following shortly after.

R645-202-242, The NOI says straw or hay mulch may be used, but the applicant needs to give a definitive commitment. Seed needs to be protected either be raking the surface after seeding or by applying mulch.

HYDROLOGIC BALANCE

Regulatory Reference R645-202-235

Analysis:

Reclamation of the drill sites is covered in detail and includes trash removal, filling of the mud pits, redistributing of soil to approximate original contour, removal of sediment control measures, replacing topsoil, roughening, seeding, mulching, and crimping. These methods will also be used on newly created roads and reconstructed logging trails. These are standard reclamation methods and are expected to be successful in this situation. Roads and drill sites will be reclaimed upon completion of their use and reclamation will be done concurrently with drilling operations.

Plugging of the exploration holes will be either by filling the hole from bottom to top using cement grout, or when larger and deeper holes are encountered, by using cement grout 50 feet above to 50 feet below minable coal seams and aquifers. These conform to 43 CFR Ch. 11, para. 3484.1 (a). The top 10 feet will be cement grouted and a monument installed to show the hole location.

Findings:

The requirements of this section of the regulations are considered adequate.